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ISD
Information Services Division

News & Views

A Newsletter Dedicated To Information Technology In The State Of Montana

February 1996
Volume 13 No. 8

Emerging Technologies Spotlight

Data Collection/ Bar Code Technology

Saving the Enterprise Money and Improving Productivity

(This synopsis is a condensed version of the Data Collection/Bar Code Technology White Paper which will be available from ISD by March 1996.)

Technology Overview

Automated data collection (ADC) is the direct entry of data into a computer system without an operator or user using a keyboard. ADC eliminates manual data collection and manual data entry.

Today's automated data collection systems include optical character recognition (OCR), magnetic ink character recognition (MICR), magnetic stripe, voice recognition (VR), smart cards, radio frequency identification and data communication, vision systems, biometric identification, EDI, portable terminals, and bar code .

This white paper synopsis focuses on the last technology listed—*bar code technology.*

Bar Code Technology Defined

Bar code technology automates data collection through the utilization of bar code symbols (representing an alphanumeric or numeric code) and scanning devices or bar code readers. Bar code technology, also referred to

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Calendar of Events

February 1:

- **Public Safety Communications Task Force, 1:00, Public Library, 510 N. Broadway, Billings.**

February 2:

- **MOPUG, 1:00-4:00, Mitchell 13A & 13B.**

February 7:

- **ITMG, 8:30-10:30, Metcalf 111.**

February 13:

- **ITAC Special, 8:30-4:30, (ITAC members only).**

February 14:

- **Governor's Blue Ribbon Task Force Executive Committee, 2:00-5:00, Mitchell 160.**

February 16:

- **Governor's Blue Ribbon Task Force, 8:00-4:00, Capitol 108.**

February 19:

- **Presidents Day Holiday.**

February 20:

- **SEC, 8:30-12:00, DPHHS Auditorium (METNET).**

March 1:

- **MOPUG, 1:00-4:00, Mitchell 13A & 13B.**

March 6:

- **ITMG, 8:30-10:30, Metcalf 111.**

March 12:

- **ITAC, 8:30-11:30, Metcalf 111.**

March 15:

- **GIS Seminar, 3:00-5:00, Montana State Library Conference Room 208. *(see sidebar this page for more information).***

March 19:

- **SEC, 9:30-11:30, DPHHS Auditorium (METNET).**

April 12:

- **GIS Seminar, 12:00-1:00 Brown Bagger, Montana State Library Conference Room 208, *(see sidebar this page for more information).***

April 18:

- **Term Contract Vendor Trade Show, 10:00-4:00, Helena College of Technology. *For more information, contact Brett Boutin (444-0515).***

as automatic identification, is being utilized in the industrial, health care, retail, and government environments for streamlining workflow and business processes and for decreasing the errors associated with data entry. Bar coding is a component of a $2 billion data collection market—a market which is forecasted to grow at a rate of approximately 25% per year.

The importance of this emerging technology is not only recognized by business, government, and industry, but by educational institutions. In 1986 Ohio University's Center for Automatic Identification (CAI) developed an undergraduate course devoted to automatic data collection technology. CAI also trains college-level educators in the use of this technology.

Bar Code Technology Advantages

There are many advantages in utilizing bar code technology over manual data entry and collection systems. These advantages can be categorized under improved productivity, accuracy, accountability, timeliness of data, and customer services.

- Bar code technology increases worker productivity. Bar code systems enable workers to collect data quickly and accurately, allowing them to devote more time to customer service and other high-value job activities.
- Bar code technology reduces the number of data collection errors. Keyboard data collection produces approximately one undetected error per 300 characters entered. Non-keyboard data collection, such as bar code data collection, results in one error per millions of characters entered. If the estimated cost per error is $27, significant savings can be realized by the utilization of bar code technology.
- Bar code technology maintains a high degree of input reliability as bar codes can be accurately interpreted after being faxed. In addition, bar codes are not subject to decoding errors as a result of noise, moisture, and distribution.
- Bar code systems utilizing portable bar code readers can be taken to the point of data origination; in other words, portable bar code readers can be utilized by technicians "in the field" for recording and measuring weights, time, quantities, etc.
- Bar code systems provide management with an efficient, and fast way of managing and controlling the hour-to-hour and day-to-day activities of organizational work flow and processing. Real-time data collected via bar code readers can be integrated into executive information systems and decision-making systems enabling managers

GIS Seminars

March 15 - Michael Sweet, University of Montana, School of Forestry, *Visual Analysis: The Zen of GIS.* This session will explore new dimensions in visual reasoning and communication through the application of scientific visualization and multimedia software to geographic databases. The seminar will be held on March 15 in the Montana State Library Conference Room 208 from 3:00-5:00. For more information, contact Kris Larson (444-5691).

April 12 - Roly Redmond, University of Montana, School of Forestry, *Mapping Existing Vegetation and Land Cover Across Large Geographic Areas Using Remote Sensing and a GIS.* (Please note that this seminar has been rescheduled from February 16 to April 12.) This presentation will describe general methods and results from the GAP Analysis project in western Montana. Roly will also discuss how the findings and techniques can be applied to other projects. Please note that this presentation is scheduled for a NOON Brown Bagger. The seminar will be held on April 12 in the Montana State Library Conference Room 208 from 12:00-1:00. For more information, contact Kris Larson (444-5691).

to make accurate and fast decisions which boost company profits, improve customer services, promote employee job satisfaction, and reduce the cost of delivering services or products.
- Bar code system implementation costs can be recovered through increased worker productivity or reduction in FTEs.
- Bar code system implementation can reduce paper and supply cost.
- Bar code implementation identifies and eliminates production or work flow bottlenecks.
- Bar code technology saves lives. Reports in *The Journal of the American Medical Association* show errors in drug use are a major cause of injury among hospitalized patients (49% of errors occurred at the ordering stage, 11% in transcription, 14% in dispensing, 26% in administration).

In summary, improved productivity, accuracy, accountability, timeliness of data, and customer services are benefits of utilizing bar code technology.

Bar Code Technology Disadvantages

There are also disadvantages associated with bar code technology.
- Bar codes have to be created and someone must stick them on a form.
- Bar codes can require a large amount of space on a form or package.
- Bar codes represent a limited number of digits or characters.
- A bar code system may be more expensive to implement than a traditional keyboard data entry system.
- Employees may resist bar code technology and implementation and may try to sabotage its implementation fearing that automation means employee terminations.

Bar Code Applications

Any type of organization, business, industry, government entity, educational institution, health care facility, or public utility can utilize bar code technology for entering data into a computer. Applications which utilize bar code technology with positive return on investments are:

inventory control
work order tracking
time and attendance
client/patient billing
product distribution
point-of-sale
quality control
receiving
shipping & EDI
customer service
labor tracking
work in process tracking
document and package tracking
fixed asset management and tracking
work flow and process analysis
product identification and verification

Bar Code Symbologies

Bar code symbologies being utilized today include: U.P.C. (Universal Product Code) A & E, Code 39, Code 128, Code 93, Interleaved 2 of 5, EAN-8 & 13, Codabar & MSI-Plessey, Postnet, and new 2D symbologies.

Bar Code Standards

There are four different types of bar code standards: symbology standards, print quality standards data content code standards, and labeling standards.

Symbology standards define how to encode characters using bars and spaces of varying widths.

In 1990 ANSI (American National Standards Institute) published ANSI X3.182-1990 Bar Code Print Quality Guidelines. These print quality standards define a way of determining the print quality of a bar code.

Data content code standards tell a data collection system what type of data is encoded in a bar code symbol, and labeling standards are developed for a specific industry to satisfy unique information requirements.

How and Where to Implement Bar Code Technology

Any organization contemplating implementing bar code technology should develop a master plan which defines where a company or organization *should* use bar code technology and recommends an implementation sequence. This implementation sequence can be based on answers to the following questions:
- How much would bar code technology reduce data entry requirements?
- How much would the implementation of bar code technology increase worker productivity?
- Could FTEs be reduced if bar code technology was implemented?
- Which forms or paper documents could be eliminated because of bar code technology?
- Which applications will benefit our external customers the most? Which applications do "users" and "managers" want?
- Will the application be easy to implement and have high visibility?

The master plan also contains *action steps* that need to be taken in order to implement the plan. Obstacles, problems to be encountered when implementing bar code technology, and solutions to these problems must be identified and documented.

Those developing and implementing the plan must ensure that management understands the purpose of the master plan and that all of management's concerns are addressed and answered. Furthermore, management needs to allocate appropriate resources needed to develop the plan and must ensure that the project manager and team have appropriate abilities and skills for completing the plan (such as the ability to analyze data and work flows, the ability to interview people, a high level of knowledge about information systems, a knowledge of bar code technology, and excellent writing and communicative skills).

If this foregoing commitment is present, the master plan will promote project acceptance and buy in, will enable businesses to prioritize bar code technology implementation, and will bring about positive project results.

In-State Bar Code Implementation:

Only a few of Montana's State Agencies (see below) are utilizing bar code technology today, although several agencies indicated in the *1996-97 Information Technology Plan* that this emerging technology was one they wanted to explore.

Out-of-State Bar Code Implementation:

A recent utilization of bar code technology in an automated time and attendance application occurred in Chicago's public school system. Implementation of this system is saving Chicago approximately $650,000 per year. Cost savings are realized through improved productivity

State of Montana's Utilization of Bar Code Technology

Agency	*Current Applications*	*Future Applications*	**OCR, MICR, Magnetic Stripe, VR & Smart Card**
Administration	Location of claims files, Tracking magnetic tape cartidges in mainframe tape library	Inventory	No response
Agriculture	Chem Lab at MSU-Bozeman uses for tracking samples	MSU-Bozeman will be looking at sample identification in feed and fertilizer regulatory system in Helena, Great Falls and MSU	Not applicable
Auditor	None	No specific plans	OCR in the future; Registration and licensing could be electronic. National standard software for "appointments" to work at an insurance agency
Commerce	License renewals in professional and occupational licensing area	Look at data collection technology for all areas within the agency where data entry is required from turnaround documents that are sent out	Not currently using
Corrections	Inventory purposes at the Boulder facility warehouse	No specific plans	Working on a planning process for the coming 5 years that call for the utilization of some of these technologies
Environmental Quality	None	Inventory, Asset Management, Problem/Trouble/Change Function	OCR-desktop scanners-graphic images, text to OCR
Fish, Wildlife and Parks	None	None	Considering using drivers license magnetic stripe for Point of Sale system, possibly will use VR with a voice mail system, may be interested in Smart Card
Historical Society	None	Would like to use for merchandising in retail operations, possible use in collections management	N/A
Judiciary	None	Would like to do more in the graphical arena—could use for counties to collect data for Helena	Will look at this technology— could use for counties to collect data for Helena

Justice	Magnetic stripe on driver's license with driver information	Hand gun registration, 2D bar code for fingerprints	No response
Legislative Branch	None	None	None
Livestock	None	Bar coded brand ID could save time, the Diagnostic Laboratory in Bozeman might use the technology for sample identification as it moves through the Lab	N/A
Military Affairs	None	Could be used for inventory system	No response
Natural Resources and Conservation	None	None	None
Office of Public Instruction	None	Maybe in the media centers, school libraries..., could use voice recognition in the certification program	OCR for education specialists surveys and to compile statistics
Public Health and Human Services	None	TEAMS and SEARCHS	Pilot Smart Card project will begin in Jan 1996 for 500 Lewis and Clark Medicaid recipients
Revenue	None	Internal inventory of PCs, payment scanning, coupon readable, payments	No response
Secretary of State	None	Possibly records management/inventory tracking, annual reports	Possible to use for the Administrative Rules of Montana (ARM)
State Library	None	Bar coding will be used in the automated circulation system	No response
Transportation	Fixed asset inventory, optical reader for Scantron forms, GPS data collection	No response	No response

ISD Survey, Fall 1995

and the freeing up of manpower.

Other significant bar code technology implementations are occurring in the health care field as a result of the Department of Defense requirement for standard bar codes on incoming medical and surgical supplies, the move to EDI, and the migration to standard data formats for bar code labels on intermediate packing and shipping cases and unit-of-use packages. In July 1996, Medicare will require all hospitals to submit electronic claims using the ANSI standard format, and major payers and group purchasing organizations are moving to standard EDI for all business communications. Savings forecasts range from \$12–\$16 billion (switching to electronic claims only) and up to \$26 billion (using EDI for all transactions). Since many EDI applications employ bar code technology, it is envisioned that additional savings will be realized by companies integrating EDI and bar code technology.

Conclusion

It is important that the State of Montana set strategic direction for utilizing this cost-saving and proven data collection technology and that an enterprise master plan for utilizing bar code technology within the state be developed and implemented.

A substantial return on investment can be realized if *enterprise* applications are developed which use this technology. Applications such as fixed asset management and control, time and attendance, work-order tracking, shipping and receiving, and EDI would benefit the state. This enterprise-wide approach will result in: (1) the development of the enterprise core infrastructure needed for bar coding (database and network) design, (2) reduced expenditures for hardware and software, (3) reduced cost for training and application implementation, (4) utilization of readers for multiple applications and (5) increased worker production.

Linda Belflower, Supervisor
Information Services Division
Computing Policy & Development

ISD Prints Bar Codes Via Mainframe Laser Printers

ISD has the capability of printing bar codes via the mainframe computer system's laser printers. Application programs can call subroutines which can print the selected bar code on documents. A large variety of bar codes as well as OCR fonts are available to users with the possibility of obtaining other specialized bar codes and fonts. The Department of Labor and the Department of Revenue are currently using the mainframe barcode and OCR font capabilitites. As mentioned in the previous article, there are many uses for bar codes. Combined with the ability to design forms and fold and seal mailers, ISD can offer an agency a cost effective way to get information out to users.

For assistance in working with bar codes, call Jan Lewis (444-2901) from Security, Methods & Media Management.

SUMMITNET

SummitNet Contract Awarded

The State of Montana, Department of Administration, recently completed a major Request for Proposal (RFP) to expand the State's data telecommunications network. The State and U S WEST have signed a $3.4 million contract to provide transport services and equipment over a period of three years for the SummitNet project, a major expansion of the State's data network.

The RFP process began in earnest in late winter of 1994 with the drafting of the RFP, which was comprised of three major sections: Company Service Qualifications, a Technical Analysis, and a Cost Section. A SummitNet Evaluation Team was formed to write the RFP, develop the evaluation criteria, and complete an evaluation and recommendation of proposals received in response to the RFP. This team was comprised of personnel from the Information Services Division and representatives of the State of Montana University System. ISD members were Jim White, Terry Kramer and Dan Mossman from the Policy, Development and Customer Relations Bureau, Ron Dobmeier from the Telecommunications Operations Bureau, and Tom Buchholz from the Computing Operations Bureau. Scott Figg represented Montana State University, and Paul Marsh represented the University of Montana.

On May 19, 1995 the State released the RFP and a vendors conference was held in Helena on June 1, 1995. In response to the RFP, five proposals were received by the proposal due date of August 4, 1995. An initial evaluation was completed by the Evaluation Team and vendor interviews were conducted separately with each vendor during the first two weeks of October 1995. Following these interviews, questions were sent to each vendor so that each was afforded the opportunity to clarify issues and to respond with a Best and Final Offer. All five vendors responded with a Best and Final Offer, and a final evaluation was completed.

Throughout this process, the Evaluation Team periodically reported to the SummitNet Oversight Team. This team was made up of ISD Bureau Chiefs Jeff Brandt and Carl Hotvedt, Steve Henry of the University of Montana, and Eric Lindeen of Montana State University. The function of the Oversight Team was to review recommendations from the Evaluation Team, provide general RFP direction, and to participate in the vendor conferences and interviews.

> ***"Public and private partnerships are critical to the success of large projects like SummitNet," said Tony Herbert, administrator of the Information Services Division overseeing the network. "SummitNet will provide greater access between government, university units, K-12 schools, tribal colleges, libraries and the public."***

On December 6, 1995, the Evaluation Team and Oversight Team jointly recommended to the SummitNet Executive Council (SEC) that the State of Montana issue a letter of intent to award to U S WEST, and move forward with contract negotiations. SEC is made up of Lois Menzies, Department of Administration, Dr. Richard Crofts, Office of the Commissioner of Higher Education, Gregg Groepper, OPI, Bob Person, Legislative Council, Dennis Taylor, Department of Justice, Mick Robinson, Department of Revenue, and Janet

Kelly, County Commissioner, Custer County. The recommendation was approved unanimously by the SEC, and a contract was signed with U S WEST on January 3, 1996.

The Department of Administration contracted with META Group, a private consulting firm located in Reston, Virginia, to provide an independent review of the RFP procurement process and the recommendation delivered to the SEC. META participated in the review of the vendor proposals and the findings and recommendation of the Evaluation and Oversight Teams. In concurring with that recommendation, META stated "The selection of U S WEST as the recommended frame relay service provider is consistent with our review of the proposals and the experiences of our client base."

The foundation of the U S WEST network is ten cell-based Cascade frame relay switches located in the following locations: Helena, Great Falls, Butte, Missoula, Billings, Bozeman, Dillon, Havre, Glendive, and Miles City. Remote locations outside of the frame relay serving area will be connected to the closest switch using backhaul private line facilities provided by the independent telephone companies. The U S WEST frame relay network and connected equipment (Cisco routers, Digital Service Units (DSU) and Uninterruptible Power Supplys (UPS)) will be monitored by the U S WEST Public Data Network Control Center (PDNCC) in Minneapolis, Minnesota. Maintenance will be provided by U S WEST employees for transport services and equipment in US exchanges. U S WEST will subcontract with IBM, and their subsidiary Technical Service Solutions (TSS), to provide support of some services. U S WEST and IBM together have 60 technicians throughout Montana.

"Public and private partnerships are critical to the success of large projects like SummitNet," said Tony Herbert, administrator of the Information Services Division overseeing the network. "SummitNet will provide greater access between government, university units, K-12 schools, tribal colleges, libraries and the public."

"SummitNet is an exciting, important project," said Doug Bermingham, U S WEST account manager. "U S WEST is looking forward to this combined effort to bring the best in communications technology to schools, libraries and government services across the state."

For more information on the SummitNet RFP and contract, please contact Jim White (444-2516) from Telecomm Policy & Development. Questions about SummitNet can be directed to Carl Hotvedt (444-1780) from the Telecommunications Operations Bureau.

Internet Infrastructure Initiatives Under Consideration

With the completion of the Internet pilot some significant lessons were learned. Key among them was the need to put in place some necessary key pieces of an Internet infrastructure. Because the infrastructural base of the Internet is a TCP/IP network, most of these pieces deal with aspects of this network. Without such an infrastructure the State of Montana cannot take advantage of the REAL information technology advances being developed in the current Internet boom. The key infrastructure elements under consideration are: IP address management, security, software distribution, and domain name services.

Security, like disaster recovery, is something information users only think about after something has happened. Fortunately the state is currently not significantly exposed and has not had any consequential security breaches. However, as the size of the state's TCP/IP network and Internet use grows, both from the implementation of SummitNet and the Internet needs of agencies, so will the exposure to security breaches also grow. The state must put in place an industrial strength security system that places a baseline level of Internet security under all state users automatically. ISD is currently developing an Internet security strategy and design.

One of the characteristics of TCP/IP networks is that each workstation (host) must have a unique network address assigned to it for its use. While such address distribution and management can be handled, e.g., by a spreadsheet of addresses and hosts within small networks, large networks require a more robust and sophisticated approach. Mobile users and everyday LAN moves especially stress the capabilities of a manual IP address management system. ISD is investigating alternatives that will dynamically manage the large number of TCP/IP enabled nodes that are expected under SummitNet.

TCP/IP addresses are cumbersome to deal with. Early in development of the Internet it was realized that English-like aliases were easier to use than TCP/IP addresses (i.e. www.mt.gov vs. 161.7.104.225). To accomplish this, a specialized application called a Domain Name Server (DNS) was created to translate the English like symbolic names to numeric TCP/IP. Fortunately this is all done behind the scenes. The only thing that needs to be done is to identify significant nodes (typically servers, i.e. NetWare, FTP, WEB, TN3270, etc.) and register their name with the administrator of the DNS. Currently the state is utilizing the DNS at the University of Montana, but is investigating implementation of such a service locally.

Finally, one of the key services that must be implemented in any enterprise oriented information infrastructure is software distribution. Consistency of installation and continuity of release levels is essential if a functionally robust, enterprise oriented information infrastructure based on TCP/IP and the Internet paradigm is to function. Enterprise software distribution is a key element in ensuring that the users working on the Internet or using TCP/IP based applications do so trouble free and transparently.

For more information, please contact Terry Kramer (444-2556) from End User Systems Support.

State Telephone Network Has Been Upgraded

The State Telephone Network has now been upgraded to Integrated Services Digital Network (ISDN) functionality. New software has been installed in network switches in Billings and Bozeman, the last of the major network switch sites, that will improve call setup time, improve circuit utilization between switches and provide for remote signaling between switch sites. An example of the benefits of ISDN will be the capability to extend voice mail services from the University of Montana campus switch to the Department of Natural Resources, Forestry Division offices in Missoula. This expands the State Telephone Network's capabilities to offer network services to remote switch sites using existing systems installed at a few strategic central locations.

For more information, please contact Ed Baum (444-2861) from Voice Operations.

MEGACOM Rates Reduced

Due to a recently negotiated rate reduction with AT&T, which was based upon increased MEGACOM 800 volumes, we will be reducing our MEGACOM rates effective December 1, 1995. (MEGACOM 800 is AT&T's offering for volume 800 service.) The new rate for all MEGACOM service will be 14 cents per minute. This new rate will be reflected on the bill you receive in February 1996 for the month of December 1995 usage.

This reduction in cost is our way of passing on to you, the customer, any and all savings that can be obtained from our vendors.

Questions you may have regarding the new rate may be referred to Les Smith (444-1203) or Ed Baum (444-2861) from Voice Operations.

METNET Interactive Video Reaches Out To Montana and the World!

A recent video conference sponsored by the International Partnership for Interactive Research and Learning (IPIRL) connected researchers within the State's University System to their counterparts in other states and Ireland. The purpose of the video conference was to embrace the following objectives:

- facilitate the exchange of ideas and instruction through interactive, multi-media technology;
- create and extend applied research opportunities for faculty and students; and
- encourage strategic alliances and identify market opportunities for commercial and non-profit organizations.

As part of this project, ISD performed three test conferences with Ulster and Belfast in November, then had a several hour multi-point video conference with them, including a site from Portland State University in Oregon, and West Virginia University! It was a fairly big deal, inaugurating the IPIRL program. On January 16, MSU conducted another video conference with Ireland, assembling resources, students and research areas. ISD is proud to be a visible and substantial contributor "charter member" to this project.

ISD is working with Southwestern Montana Telepsychiatry (SMT) to put in a new video conferencing site at the Boulder Hospital, which will serve the medical/psychiatric needs there, plus offer educational opportunities for the staff and community. SMT is also planning, testing, and encouraging new uses for the system (staff to patient, court officer to patient, family to patient, etc.) which might pioneer new and valuable clinical/therapeutic/judicial use of interactive video conferencing.

Montana State University and University of Montana will both be putting in two or more video teleconferencing sites on their campuses by this fall. This will substantially increase classes available on METNET, as well as use on the state's digital facilities network.

ISD has been using the Eastern Montana Telemedicine Project's sites more and more to allow our staff to do video teleconferences into the locations of Culbertson, Glasgow, and Sidney. ISD is very appreciative of the alliance created by our Telecomm Policy & Development staff and Eastern Montana Telemedicine; likewise, we hope to be able to work with the REACH Network based at Montana Deaconess Medical Center in Great Falls, serving Cut Bank, Conrad, Shelby, etc.

METNET Interactive Video is VERY ACTIVE!!! We've come a long way in becoming credible, useful, and very effective in contributing to the educational and economic benefit of the state of Montana students, employees, and citizens.

For more information, please call Rick Wine (444-3517) from Video Operations. A brochure with METNET Interactive Video rates and information is available from Dennis Mix (444-7887) from Video Operations or Amanda Christen (444-2700) from Customer Relations.

Hooray!
Hooray!

Mainframe Dialup Speeds Up

Finally, ISD moves to the high-speed world of dialup communications—hooray, hooray! The Telecommunications Operations Bureau has recently removed some of its ancient mainframe dialup access hardware (the 3708 in IBM hardware lingo) and replaced it with much faster equipment. In addition, the entire modem pool has been upgraded to 19,200 BPS capability.

In order to provide maximum availability and performance for our customers, ISD needed to reduce the large number of terminal emulation protocols supported. As a result, the new hardware will only support the industry standard VT100, IBM's 3101, FTTERM COLOR, and FTTERM MONOCHROME ASYNCH terminal devices. The old communication/modem parameters are still the same (8-None-1) and the supported speeds are 1200 thru 19,200 BPS.

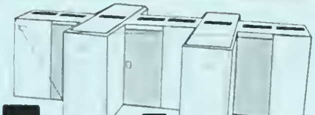
ISD has done extensive testing on the new hardware and has received rave reviews on the improved performance. *If you would like to try the new hardware prior to the full cut over, the following phone numbers will connect you to the new hardware: PACICS (444-2665), UCC (444-2661), and CICSPUBL (444-2666).*

One of the three 3708s (TSO/CICS) was removed in mid January, and the remaining 3708s are due to be replaced over the weekend of February 24–25. **After the full cut over, the following phone numbers will connect you to the new hardware: TSO/CICS (444-4700), PACICS (444-4369), UCC (444-5481), and CICSPUBL (900-225-4300).** Remember, there will be only four terminal emulation protocols supported (VT100, IBM 3101, FTTERM COLOR, and FTTERM MONOCHROME) on the new hardware.

ISD has prepared a reference card containing all the pertinent information regarding *dialup access to the mainframe* resources. This card should answer any questions you may have and help you with any difficulties you may encounter in logging on to the mainframe. The card is available by calling Amanda Christen (444-2700, Mitchell Room 229) from Customer Relations. Copies are also available from Sherry Leone (444-2597, Mitchell Basement, New Wing) from Computer Operations Support.

If you have any trouble connecting to the new hardware, please call ISD's Customer Support Center (444-2000).

Questions relating to this article may be directed to Dennis Sheline (444-2869) from WAN Operations.



MAINFRAME NEWS

The Armory Gets Square (Tapes, That Is!)

As of January 2, 1996, the principle format for tape processing on system B, located in the Armory building, has been switched to square tape cartridges. The new cartridge tapes allow users to benefit from increased reliability, increased storage capacity, faster processing, and overall reduced tape processing costs. Since most of the actual tape medium is enclosed in the cartridge it is less susceptible to contamination and exposure making it less likely to experience an I/O error during processing. The IBM 3480 square tape drives automatically mount most scratch requests which will result in less wait time for the user and less interaction required by the operators. The increased storage capacity of the cartridges allows users to consolidate data which will decrease tape mount charges and tape storage costs.

A memo has been distributed to tape users on system B outlining the conversion procedure. If you did not receive the memo and would like a copy, contact Diane Haun (444-3336) from Security, Methods & Media Management.

Round tape processing will be accepted on a limited basis until the IBM 3420 round tape drives are removed. However, all applications should be converted to the square tape format as soon as possible. You should also consider converting to DASD which is even more efficient and less costly. If you need assistance concerning the conversion of your applications, call Diane Haun (444-3336) from Security, Methods & Media Management or Bill Ramsay (444-2902) from Operating System Support.

ITAC Begins Planning For Next Budget Cycle

At the regular Information Technology Advisory Council (ITAC) meeting on January 9, Dave Lewis from the Governor's Office of Budget and Program Planning gave members the "reality check" on the current and future state budgets. Mr. Lewis predicted that with the new federal legislation calling for a balanced budget in seven years, the state could expect to receive less federal money. Federal money, Mr. Lewis reported, accounts for 10% of the growth in state resources. Although the state will still receive some funds, the growth will be less than the past 10%, and will affect programs such as health and welfare, education, and highway construction the most.

Tony Herbert announced that a one-day budget planning meeting for ITAC members is scheduled to be held on February 13, 1996. Issues to be discussed include a review of the 1994 *Information Technology Strategic Plan*, various task force recommendations, EPP items, and new strategic issues and concerns. Mr. Herbert has asked that agencies submit a prioritized list of their top five strategic information technology issues to him by February 6 for discussion at the meeting.

Full minutes of the meeting may be found on the state BBS (Agency / Administration / Advisory Groups), on the Value Added Server (under GUEST\ITACINFO), or by calling Amanda Christen (444-2700) from Customer Relations.

Software Directions Being Evaluated At ITMG

The Information Technology Managers Group (ITMG) met on January 3, 1996. Two of its subcommittees are researching and evaluating new directions in electronic mail, operating systems and database products in conjunction with ISD staff.

The Operating Systems Subcommittee, chaired by Hank Trenk of the Legislative Branch, is currently concentrating on e-mail as well as desktop operating systems. Recommendations for the use of Windows 95 in the state environment and a new e-mail direction will result from the subcommittee's work. The Enterprise Software Subcommittee, chaired by Steve Colberg of the Governor's Office of Budget and Program Planning, is close to a recommendation for an enterprise database standard. They are looking at a multi-tiered approach to database products to meet the needs of everyone from the end-user with a local application up to those applications that are enterprise-wide. Special meetings will be held and a final recommendation should be presented at the February meeting.

The group is also considering changes to the MOM policy on information security. The changes involve tightening state standards for passwords as described in the December 1995 *ISD News & Views* article titled *Cross Platform Security Issues*.

Full minutes of the meeting may be found on the state BBS (Agency / Administration / Advisory Groups), on the Value Added Server (under GUEST\ITMGINFO), or by calling Amanda Christen (444-2700) from Customer Relations.

Using On-Line Help in WordPerfect 6.1

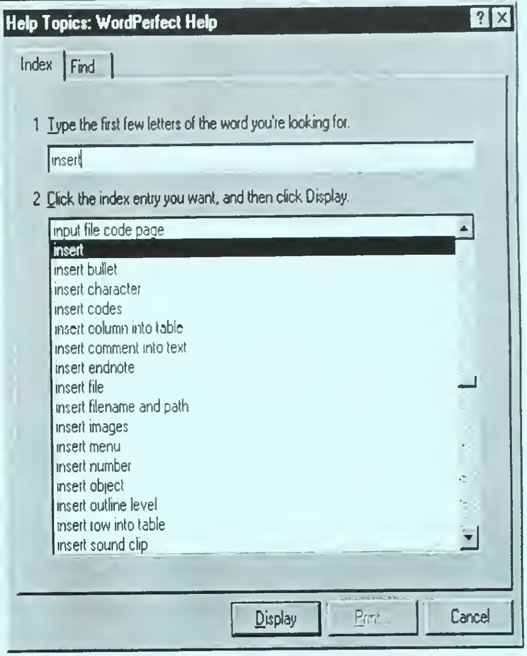
Your supervisor has just assigned you the task of developing a monthly agency newsletter. In order to obtain a professional look, the more advanced functions of WordPerfect 6.1 for Windows will need to be utilized. However, you consider yourself a novice user and are overwhelmed at the thought of yanking out the huge WordPerfect manual and letting your fingers do the walking.

Articles start arriving and you need to pull them together into one file. How is that accomplished? Let your mouse help out! By clicking on **Help** from the pull-down menu, you now have access to each function along with brief explanations of how to invoke the specific function you have chosen.

The best way to find out how to perform a specific function is by clicking on:

Help
Search for Help on...

This lists all WordPerfect 6.1 functions alphabetically. Begin typing the first few letters of a feature. For example, type "insert" to get information on how to insert a file into the existing one. (See Figure 1.) The cursor moves down the list to the first occurrence of the word "insert" which is now



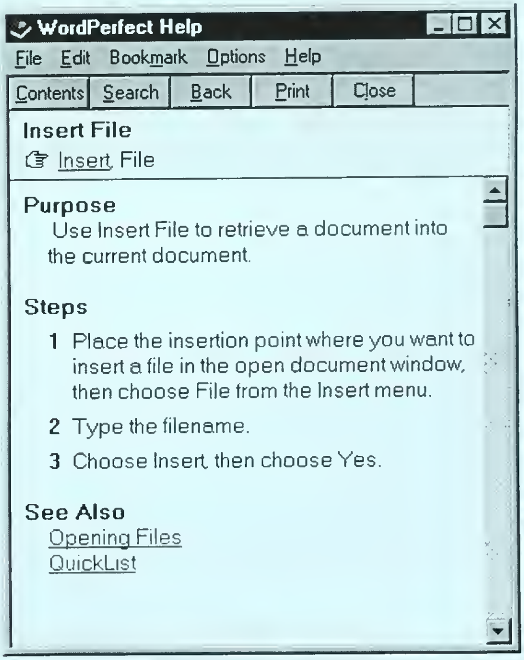
1 Type the first few letters of the word you're looking for.

insert

2 Click the index entry you want, and then click Display.

input file code page
insert
insert bullet
insert character
insert codes
insert column into table
insert comment into text
insert endnote
insert file
insert filename and path
insert images
insert menu
insert number
insert object
insert outline level
insert row into table
insert sound clip

Figure 1: WordPerfect Help (Insert)



Insert File

Insert, File

Purpose

Use Insert File to retrieve a document into the current document.

Steps

1 Place the insertion point where you want to insert a file in the open document window, then choose File from the Insert menu.
2 Type the filename.
3 Choose Insert, then choose Yes.

See Also

Opening Files
QuickList

Figure 2: WordPerfect Help (Insert File)

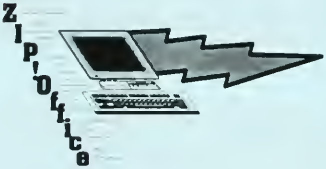
highlighted. Scanning below this entry, you will find "Insert File".

Double clicking on it will open another window (see Figure 2.) that defines the purpose and gives the steps needed to perform the function.

NOTE: Under "See Also", there is a list of related topics. By double-clicking on them, you can obtain even more related information.

This is only one way in which the On-Line Help can be useful. Watch for next month's article in which another section of WordPerfect's On-Line Help will be explained.

If you have questions on WordPerfect, check out the On-Line Help area or contact Sue Skuletich (444-1392 or via ZIP!) from End User Systems Support.



The Seven Minute Appointment

Customize your preferences in ZIP!Office to fit your scheduling

Appropriate settings in **Preferences** can save a few seconds when scheduling an appointment in ZIP!Office. There are few occasions where an appointment is to start at 10:07AM and last 44 minutes so why not set preferences to provide a default value for realistic appointment length, time incrementing and start time incrementing.

The ZIP!Office **Options Preferences** window (see Figure 3) contains the settings applicable to appointments. They are displayed in the upper right hand corner of the window. These settings are the default values displayed on the **Add appointment** window when it is first opened.

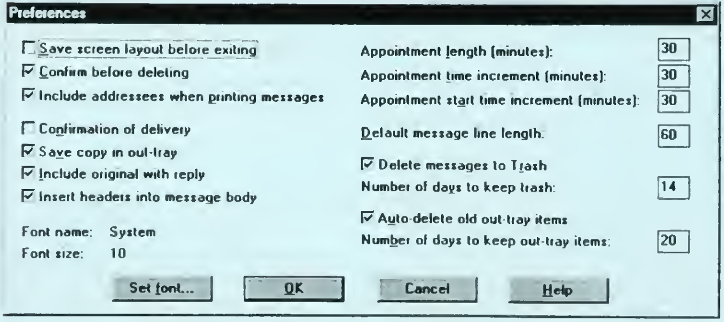
Let's look at **Appointment start time increment** first. If you have this option set to 1, the start time will default to the current time displayed on your PC. Changing it from 30 to 15 will cause the default start time to display to the next quarter hour.

Appointment length is the first of the three settings. If most of your appointments last an hour and a half, change this setting to 90. Whatever the value in this field, if the **Time:** field changes in the **Add appointment** window, the **to** field will require a manual change also as the appointment length interval only calculates upon first display of the screen.

The **Appointment time increment** setting determines the increase/decrease interval when the spin control arrows are clicked. Typically appointments are scheduled at half hour intervals. When this option is set to 30 the **Add Appointment** window **Time** and **to** display will change by a half hour with each click.

Customize your preferences to fit your scheduling and in case some wonderfully efficient person wants you to schedule for a seven minute appointment remember your defaults can all be overtyped in the **Add appointment** window.

Questions about ZIP!Office? Call Candace Rutledge (444-2858) from End User Systems Support.



Preferences

☐ Save screen layout before exiting
☑ Confirm before deleting
☑ Include addressees when printing messages

☐ Confirmation of delivery
☑ Save copy in out-tray
☑ Include original with reply
☑ Insert headers into message body

Font name: System
Font size: 10

Appointment length (minutes): 30
Appointment time increment (minutes): 30
Appointment start time increment (minutes): 30

Default message line length: 60

☑ Delete messages to Trash
Number of days to keep trash: 14

☑ Auto-delete old out-tray items
Number of days to keep out-tray items: 20

Figure 3: ZIP!Office Preferences

Lotus 1-2-3 5.0 Lesser Known Abilities

Printing non-contiguous ranges and an alternative way to cut and paste in Lotus 1-2-3

Lotus 1-2-3 5.0 gives you the ability to select and print non-contiguous ranges within your spreadsheet. A contiguous range is one where the cells are a complete block. (i.e. A:A1..A:H5 prints the entire range of cells on sheet A from A1 to H5.) If you wish to select non-contiguous ranges, select the first area you wish to print (A:A1..A:H5), then hold the **Control key** down and separately highlight each of the other cells or ranges you wish to print. Choose **Print** and make sure that **Selected range** is chosen. This method works very well for printing various totals or other information. The printout will be in a single column format, but the ranges which you are choosing to print are not all connected.

Various Windows programs, Lotus 1-2-3 included, do not always allow you to get to the **Cut** and **Paste** menu options under **Edit** or the **Cut** and **Paste** icons on the **Tool Bar**. A simple work around for this is to revert back to the DOS cut and paste keyboard commands. Highlight the text or formula you wish to cut/copy and press **Shift-Delete**. This will delete the highlighted area. Press **Shift-Insert** to paste the text or formula to the new location or to replace the text which was cut using **Shift-Delete**. This command works the same as the cut and paste Windows commands, but are usually available even when other Windows cut and paste functions are not.

And as always, if you have any questions regarding Lotus 1-2-3 or Windows, contact Brian Divine (444-2791) from End User Systems Support.

WINDOWS FREEBIES!

NewINI—Another Windows Freebie

Copyright, Jeff Lundblad; June 8, 1991

NewINI is a WIN.INI file change broadcaster. No more "You must exit Windows for the changes to take effect!" Run NewINI after modifying the WIN.INI file to make the changes you just made to WIN.INI take effect. If NewINI is already running, just double click its icon. NewINI de-caches the WIN.INI file and notifies all running programs that WIN.INI has changed. (Running programs may need to be re-started if they aren't listening for WIN.INI changes.)

If you would like a copy of NewINI, contact Denny Knapp (via ZIP! or at 444-2072) from End User Systems Support.

SAS Tips To Help You

How to get solid border characters via PROC GPRINT output that contains a table produced by PROC TABULATE

In Release 6.09 and later of SAS/GRAPH software, the JPRINT procedure can be used. This procedure uses the same syntax and logic as the GPRINT procedure, but is enhanced to automatically convert dashed border characters into solid border characters without requiring a device-dependent FORMCHAR= string. Here is a brief example that illustrates using the JPRINT procedure and shows the output it produces.

```
filename out 'tab.dat';

options nodate linesize=50;
data one;
    x=1;
run;
/* ROUTE PROCEDURE OUTPUT TO EXTERNAL FILE */

proc printto file=out new;
run;

/* PRODUCE TABLE */

proc tabulate;
    table x;
    class x;
run;

/* ROUTE OUTPUT BACK TO DEFAULT */

proc printto;
run;

/* READ EXTERNAL FILE AND PRODUCE GRAPHICS OUTPUT */
/* CONTAINING  THE TABLE WITH SOLID BORDER CHARACTERS */

proc jprint fileref=out;
run;
quit;
```

X	
I	
N	
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How to find out if files in a SAS data library are password protected.

To list all files and password types from all allocated SAS data libraries, the SQL procedure can be used. For example:

```
proc sql;
select libname, memname from dictionary.tables
    where protect not='--';
quit;
```

If you have any questions about these SAS procedures, contact Jerry Kozak (444-2907) or Brian Divine (444-2791) from End User Systems Support.

Pssst... Listen Up!

Do You Know These MVS Tech Tips?

SDSF (System Display and Search Facility) Display Commands

As you may already know, you can limit the number of jobs appearing on your SDSF active, input, output, hold and status displays by using the PREFIX, DEST and OWNER commands. You can also sort the listing using any of the column headings (in either ascending or descending order).

PREFIX jobname | job* | *	*Display specific jobs, jobs starting with "JOB", or all jobs.*
DEST destination | destination destination ... | *	*Display one or more destinations.*
OWNER ownerid | *	*Display those jobs owned (submitted) by a specific logonid*
SORT xxxx A | D	*xxxx = column heading, A/D = ascending/descending*

Are there times when you cannot find a job because you have previously restricted the display, and you forgot? You can display the current setting of any of these display commands by following them with a "?".

```
PREFIX ?  -or-  PRE ?
DEST ?
OWNER ?
SORT ?
```

Use the SDSF DISPLAY command to display the values of PREFIX, DEST, OWNER and SORT (if no sorting is in effect, SORT does not appear) at the top of your screen.

```
SET DISPLAY ON | OFF
```

The maximum number of lines searched by the FIND command is limited by the FINDLIM command.

FINDLIM ?	*Display the current limit*
FINDLIM number	*Reset the limit*

To display the output data set, or system log, in hexidecimal format,

```
SET HEX ON | OFF
```

If you have any questions concerning these MVS tips, please contact Donna Cain (444-2879) or Dennis Buswell (444-2881) from Operating System Support.

Announcing New Term Contract Products and Services

ComputerLand of Helena

IBM is now offering a new PC system that will be available starting February 9, 1996. If you have any questions regarding this item contact Mike C. Price (443-3200) at ComputerLand of Helena.

IBM PC 300 166 MHz Models

Powered by the 166 MHz Pentium processor and featuring high-capacity 635 MB and 1.2 GB hard disks, the new PC 330 and PC 350 systems deliver exceptional speed and performance throughput at a great price.

New models include:

- 16 MB system memory standard, expandable to 128 MB
- 256 KB L2 cache standard
- Choice of high-speed, large capacity 635 MB/1.2 GB hard disks, or 4X CD-ROM drive pre-installed with a 1.2 GB hard disk
- Up to 4.8 GB hard disk capacity
- DOS/Windows
- Leading industry technology designed for optimum performance, upgrade capability, compatibility, and investment protection
- A competitive price
- PCI bus slots for advanced capability
- Enhanced IDE for support of up to four devices
- Energy Star compliance
- Three-year limited warranty for IBM's quality, reliability, service, and support
- Help Center service and support (800/772-2227)

Each PC 300 Pentium-based system provides high-speed, 64-bit PCI graphics performance, allowing you to take advantage of many popular, complex graphics applications. Additionally, powerful software tools—Easy Tools—help manage desktop computing assets with ease and effectiveness. For example, NetFinity Services simplifies asset management, and Plug and Play provides easy installation of Plug and Play adapters.

If you value high-performance, industry standard platforms—at a great price—to achieve a productivity edge, PC 330 and 350 Pentium-based systems are ideal for your general-business computing activities.

Easy Tools

Easy Tools are software tools which help manage desktop computing assets with ease and effectiveness. They are available to state agencies, however, they are not state standard tools and are not supported by ISD.

NetFinity Services
NetFinity Services simplifies asset management by allowing LAN administrators to remotely gather system configuration details such as memory size, adapters installed, operating system used, and more. This information can be stored in a database for record keeping and reporting.

QAPlus
This diagnostic software tool enables users and system support staff to accurately diagnose common problems on all major system components. The diagnostics may be run by clicking on an icon rather than booting from a diskette.

CoSession
When an optional modem is installed or your system is connected to a LAN, CoSession allows the administrators to remotely connect with and control user systems to resolve problems quickly and easily. The file transfer function enables administrators to dynamically download device drivers and configuration files. The Chat Box function lets users exchange text messages with administrators.

Rapid Resume
Rapid Resume provides a standby power mode, a scheduler, and wake-up on ring. These features combine to provide APM and efficient unattended operation of your system.

AnyView
AnyView lets you establish the ideal graphics resolution and color settings for each application on your system. Once established, compatible displays are automatically set up for the active application.

Diskette Factory
This utility helps you easily create backup install level diskettes.

Plug and Play Utility
This facility for DOS/Windows provides easy installation capability for Plug and Play adapters.

IBM Quality, Service, and Support

HelpWare
HelpWare is a comprehensive set of offerings designed to provide you with a full range of service and support options to help make your computing experience more productive and enjoyable. As part of its commitment to providing you with the support you demand, IBM provides many HelpWare services complimentary during the warranty period of your IBM Personal Computer and additional services are available from the HelpWare Support Family.

Dell

Dell introduced four desktop PCs based on the newest and fastest Pentium microprocessors announced January 4, 1996 by Intel Corporation. The new 150 and 166 MHz Pentium processors are now available on these PCs from Dell's OptiPlex line, designed for large corporate and government customers, and from the Dell Dimension line, designed to offer small and mid-sized businesses the latest technology at an attractive price.

The new Dell PCs include:

- **The OptiPlex GX5150 & OptiPlex GX5166**—The GX offers both new Pentium processors with integrated networking from 3Com Corporation, sound from Creative Labs and full-motion video capabilities from S3 Corporation. The OptiPlex GX5150 (150 MHz) and GX5166 (166 MHz) come standard with 8 MB of extended data out (EDO) memory, a 540 MB hard drive, 256 KB pipeline burst cache and a high-resolution color monitor.

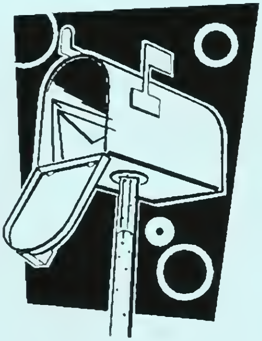
- **The OptiPlex DGX5166**—Dell's high-performance desktop workstation provides single or dual processing capabilities with the new 166 MHz Pentium processor. This combination offers users superior performance and true capability. The OptiPlex DGX5166 comes standard with 16 MB EDO memory, a 1 GB SCSI hard drive, 256 K cache 2 MB video memory, Integrated SCSI, EISA BUS and a color high-resolution monitor.

- **The Dell Dimension XPS P166c**—The new system combines Intel's new 166 MHz Pentium processor with the same high-performance features and value pricing that have distinguished the Dell Dimension product line in numerous industry awards. In *PC Magazine's* December 5, 1995 comparative review of 83 systems, Dell Dimension products earned both of the two "Editor's Choice" awards that were given by the magazine. A fully-configured P166c system comes with 16 MB of EDO memory, 256 K pipeline burst cache, a 15LS (13.75 inch viewable) color monitor, a 64-bit 2 MB DRAM video card, a 1 GB hard drive and a 4X CD-ROM.

The new systems are available immediately. All systems above include a three-year extended limited warranty.

"The quick delivery of Pentium 150 and 166 based PCs is the latest example of the strength of Dell's direct business model," said Eric Harslem, senior vice president of Dell Product Group. "The fast-to-market technology transition is a high priority for our government. These customers need fast access to new technology to reduce the life cycle costs of their computing products."

Dell Computer Corporation is the world's leading direct marketer of computer systems and one of the largest computer system manufacturers in the world, based on revenues of $4.8 billion for the past four quarters. Dell designs and customizes products and services to end-user requirements, and offers an extensive selection of peripherals and software through the DellWare program. State agencies may order through the DellWare program and the DellWare catalog. The discount percentage is the same as with the Term Contract. For example, the OptiPlex systems are discounted 5% on the contract, so take 5% off the catalog price. Information about Dell and its products can be obtained through its toll-free number (1-800-BUY-DELL or 1-800-289-3355) or by accessing the Dell World Wide Web server at http://www.dell.com/.



Is Your Address Correct?

Have you changed locations or has your office changed its name as a result of the Executive Reorganization? Are your name and address correct? Please ZIP!Mail, deadhead, or place in ISD Box 58 your current *ISD News & Views* mailing address along with the appropriate changes to Irv Vavruska, Department of Administration, Information Services Division.

Suggestions

We are constantly searching for new ideas that could enhance *ISD News & Views*. Perhaps there are subjects you would like to see covered in future articles, or maybe you just wish to share comments on *ISD News & Views*. We would like to hear from you.

Our goal is to present a vehicle, which provides information of common interest, to all agencies within state government. Please share with us any ideas you have that will enable us to keep pace in an ever changing environment. To share your ideas, please contact the editors of *ISD News & Views*.

ISD
Information Services Division

Training Calendar

This schedule has been assembled by the Helena College of Technology of The University of Montana. If you have any questions about enrollment, please call 444-6821.

All classes will be held at the Helena College of Technology, Room 211, at 1115 N. Roberts, unless another location is specified. Please note that these costs are subject to change each July 1.

To enroll in a class, **you must send or deadhead an enrollment application** to the State Training Center, HCT, Helena, MT 59601. If you have questions about enrollment, please call 444-6821. *Once you enroll in a class, the full fee will be charged UNLESS you cancel at least three business days before the first day of class.* HCT is also willing to schedule specific classes by request from state agencies.

	DATES	COST	LENGTH
Data Network/Mainframe Classes			
Oracle	April 8, 9, 10	255.00	3
Oracle Forms Prereq. Oracle	February 5, 6, 7, 8, 9, 12, 13, 14 9:00 am–12:00 pm	255.00	3
PowerBuilder	February 26, 27, 28	255.00	3
TSO/SPF	March 4, 5 1:00 pm - 4:30 pm, Room 210	85.00	1
Microcomputer Classes			
CorelDRAW!	April 16	85.00	1
Introduction to Windows	February 13, 14	85.00	1
Introduction to Windows	March 18	85.00	1
Introduction to Windows	April 11	85.00	1
Fundamentals of DOS	March 28	85.00	1
PC Memory Management	March 29	85.00	1
Word Processing Classes			
WordPerfect 6.1 Conv. Windows Prereq. Intro to Windows, WordPerfect	February 5, 6	85.00	1
WordPerfect 6.1 Conv. Windows Prereq. Intro. To Windows, WordPerfect	April 17	85.00	1
WordPerfect 6.1 Tables Prereq. WordPerfect 6.1	February 7	42.50	½
WordPerfect 6.1 Tables Prereq. WordPerfect 6.1	April 23	42.50	½
WordPerfect 6.1 Merge & Sort Prereq. WordPerfect 6.1	February 8	42.50	½
WordPerfect 6.1 Merge & Sort Prereq. WordPerfect 6.1	April 24	42.50	½
WordPerfect 6.1 Macros Prereq. WordPerfect 6.1	February 12	42.50	½
WordPerfect 6.1 for Windows Prereq. Intro to Windows	March 19, 20	170.00	2
Desktop Publishing With WordPerfect 6.1	March 25, 26	170.00	2
Spreadsheet Classes			
Lotus for Windows	February 20, 21	170.00	2
Lotus for Windows	March 21, 22	170.00	2
Lotus Conversion	April 18	85.00	1

Prerequisites may be met with consent of Instructor.

The Helena College of Technology makes reasonable accommodations for any known disability that may interfere with a person's ability to participate in training. Persons needing an accommodation must notify the College no later than two weeks before the date of training to allow adequate time to make needed arrangements. To make your request known, call 444-6821.

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ISD Class Enrollment Application

COMPLETE THIS APPLICATION **IN FULL** AND RETURN
IT **AT LEAST ONE WEEK PRIOR** TO THE FIRST DAY OF CLASS

COURSE DATA

Course Requested: ____________________

Date Offered: ____________________

STUDENT DATA

Name: ____________________

Soc. Sec. Number (for P/P/P): ____________________

Agency **&** **Division**: __________ / __________

Mailing Address: ____________________

____

Phone: ____________________

How have you met the required prerequisites for this course? Explain, giving the class(es) taken, tutorial(s) completed, and/or experience.

____

____

____

BILLING INFORMATION/AUTHORIZATION MANDATORY

User ID: _ _ _ _ _ _ _

Agency #: _ _ _ _

Authorized Signature: ____________________

FULL CLASS FEE WILL BE BILLED TO THE REGISTRANT UNLESS CANCELLATION IS MADE THREE BUSINESS DAYS BEFORE THE START DATE OF THE CLASS.

**DEADHEAD COMPLETED FORM TO:
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HELENA COLLEGE OF TECHNOLOGY
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Editor's Notes

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This newsletter is dedicated to educating and informing the reader with pertinent ISD news. Materials may be reproduced without permission. Alternative accessible formats of this document will be provided upon request.

Editorial Submissions...

If you would like to submit an article to *ISD News & Views* for publication, please send it to Curt Secker or Irv Vavruska, preferably via ZIP!Mail. Please have your article in by the 15th of the month for inclusion in the following month's newsletter.

ISD Customer Support Center...

Got a problem (opportunity)? Do you need ISD assistance for any of your information processing requirements? Then contact the ISD Customer Support Center (444-2000), which is our central point of contact.

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If not, see page 16 for details on how to correct it!

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